

Vol. III.

No, I.

BULLETIN

....OF....

The Chicago Academy of Sciences

Annual Report for the Year 1908.



CHICAGO
Published by the Academy
APRIL, 1909.

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MAIN FLOOR OF MUSEUM

THE CHICAGO ACADEMY OF SCIENCES

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Mr. Frank C. Baker.....Curator
Mr. Frank M. Woodruff.....Taxidermist
Miss Nellie G. Bunnell.....Office Assistant

HONORARY CURATORS.

Dr. Thomas C. Chamberlin.....General Geology
Dr. Stuart WellerPaleontology
Dr. Oliver C. Farrington.....Mineralogy
Prof. E. J. Hill.....Botany

ANNOUNCEMENT.

The Academy proposes to publish a new series of the Bulletin, which will be issued quarterly, and sent to members and to societies and libraries upon our exchange list. The object of the Bulletin will be to give publicity to the activities of the Academy. The present number is devoted to the annual reports of the officers for the year 1908.

Since these reports were made, the Academy has been conducting a series of Friday evening lectures which have been attended by more than could be accommodated within our present lecture hall. On several occasions the doorway and a portion of the hall have been occupied by persons standing. Many who have failed to get within hearing distance of the lecturer or within range of the screen on which the views were projected, have gone away. One evening we admitted school children from the upper class, and they occupied so large a portion of the hall that complaints were received from adults and suggestions made that we limit the attendance to our evening lectures to grown people and offer afternoon lectures or talks for children. We could undoubtedly enter that field if it was thought desirable. The crowded conditions at the lectures and the lack of space for the proper display of our museum material indicate that the Academy has outgrown its present quarters. An additional building is very desirable at present, and if the work of the Academy expands properly, with the increased resources now at our command, a new building will soon be an absolute necessity.

During the last three months Mr. Baker and the Secretary have given considerable time to coöperative work with the public schools. Twenty-five loan collections of museum material have been prepared and these have been in almost constant use in the schools. The demand for such collections is much greater

than we have been able to supply. Mr. Baker has given a number of talks in the schools of the North Side, awakening or increasing the interest in the appearance and migration of birds in the Chicago region. A number of conferences have been held with the teachers and principals of the North Side public schools for the purpose of ascertaining just what educational work the Academy could best undertake, and in a later number of the Bulletin a full report will be made to the officers and members of the Academy.

Mr. Will S. Moffatt's valuable paper on the "Fungi of the Chicago Region" is now in the hands of the printer and copies will be forwarded to members of the Academy as soon as they have been received.

The Secretary will be pleased to receive, at any time, suggestions as to plans or material for the Bulletin. General scientific news or personal items may appropriately be included in this publication, and we would be pleased to receive such material.

REPORT OF THE BOARD OF TRUSTEES.

At the beginning of the year 1908 the Academy had received from the Willner bequest the sum of \$30,000 which it had invested in a business and apartment block on the corner of Park Avenue and Ohio Street, in Austin, at a cost for that property of \$36,498.64. Since that time additional payments have been made by the trustees of the Willner estate, as follows: April 9, \$10,000; July 16, \$10,000; Nov. 27, \$10,000; Dec. 9, \$10,000; and the remaining \$30,000 of the bequest was paid on the 31st of December, together with accrued interest computed at 4% from Nov. 1, 1907, to time of payment, and amounting to \$2,480.20.

The payment of \$10,000 made in July was invested in the 5% notes of the Chicago and Western Indiana railroad. The \$60,000 lying in the treasury on the first inst. has, by direction of this board, been ordered to be invested in bonds and mortgages, by a committee of the board, \$20,000 in the 5% bonds of the Chicago City Railway at 104½, and \$15,000 in 5% bonds of the Chicago Telephone Co. at 103½ have already been purchased.

The building standing on the Austin lot, a 3-story brick, 100 x 55 feet, containing 5 stores and 10 flats, when purchased by us had not been adequately renovated since its construction some ten years previously. The board accordingly had the roof re-

coated, the woodwork painted inside and out, and all of the plumbing, steam and electric fixtures thoroughly overhauled; this work, together with sundry other repairs, caused an expense of \$733.24, all of which is in addition to the ordinary annual repairs, and will not need to be repeated for probably five years.

The lot at Austin, having a considerable vacant area in the rear fronting on Ohio St., has been made income-producing by the erection thereon of a one-story brick building, 80 feet front and 60 feet deep, containing four rooms 20 feet wide and the depth of the building, three of which are now rented at \$15 per month each, the eastern and most desirable being still unrented. The cost of the construction of this new building has been \$4,754.40. It was ready for tenants on the 1st of October.

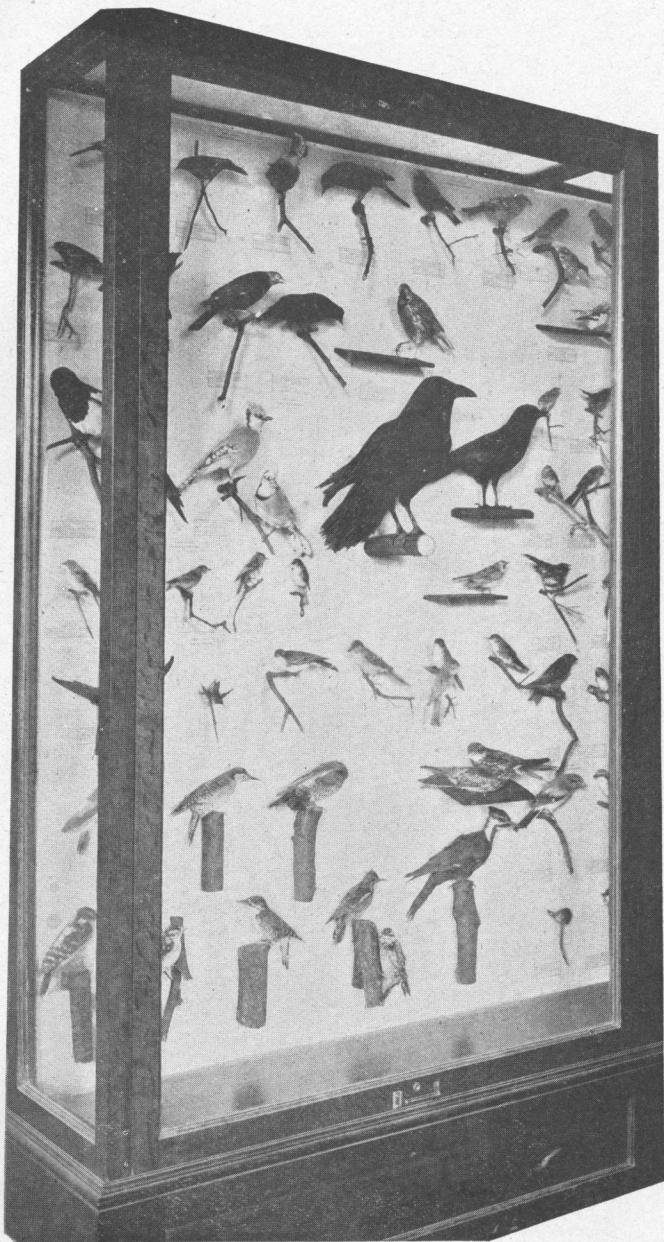
The gross income of the Austin property for the year has been \$5,257.50, and the expenses for all purposes \$2,942.83, leaving a balance of \$2,314.67, or 6 1-3% upon the purchase price.

Respectfully submitted,

Jos. R. PUTNAM,

President, Board of Trustees.

January 12, 1909.



BIRDS OF THE CHICAGO AREA

Note the absence of shelving.

ANNUAL REPORT OF THE TREASURER.

From January 3rd, 1908, to January 8th, 1909.

RECEIPTS.

| | |
|------------------------------------|-------------|
| Balance cash January 13, 1908..... | \$ 1,175.38 |
| Decoration Fund | 100.00 |
| Willner Fund | 70,000.00 |
| Willner Fund, Interest..... | 2,480.20 |
| Lowther Fund Loan paid..... | 2,500.00 |
| Sale of Publications, etc..... | 38.41 |
| Commissioners of Lincoln Park..... | 5,416.64 |
| Austin Property | 3,453.24 |
| Dues | 400.00 |
| Interest | 71.53 |

EXPENDITURES.

| | |
|--------------------------------------|-------------|
| Expense | \$ 768.23 |
| Insurance | 68.00 |
| Chicago & Western Indiana Notes..... | 10,050.00 |
| Pay Roll | 5,064.16 |
| Petty Cash | 260.00 |
| Printing | 13.66 |
| Lectures | 75.50 |
| Photography | 8.93 |
| Publications | 42.75 |
| Traveling Expenses | 90.00 |
| Museum | 109.30 |
| Furniture and Fixtures..... | 302.91 |
| Austin Expenses | 355.00 |
| Austin Investments | 13,160.26 |
| Library Expenses | 199.23 |
| BALANCE FORWARD AT CR..... | \$55,067.47 |

\$85,635.40 \$85,635.40

BALANCE FORWARD AT CR..... 55,067.47

Respectfully submitted,

LOUIS E. LAFLIN,

Treasurer.

ANNUAL REPORT OF THE CURATOR AND ACTING
SECRETARY.

JANUARY 12, 1909.

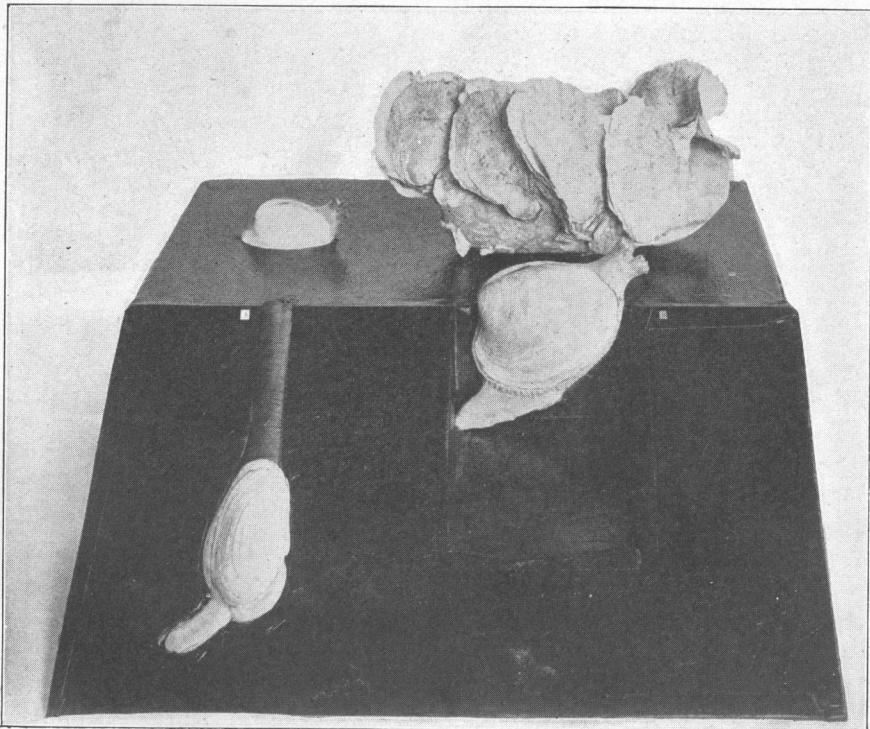
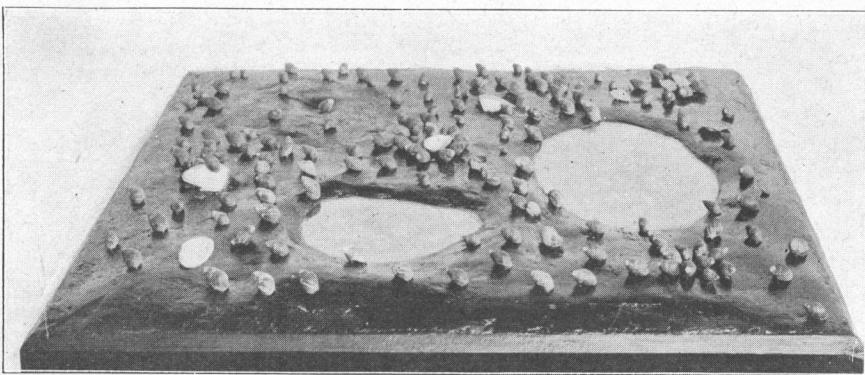
Mr. President and Members of the Academy:

I have the honor to present herewith my fifteenth annual report.

The year 1908 has been marked by no single achievement of special note. It has been rather a period of steady, healthy growth in all departments, which has placed the institution in a better condition for future usefulness. The results of much of this effort will appear during the present year.

There were, however, two noteworthy events which require special mention. Early in the year the State Academy of Sciences appointed an ecological committee consisting of Dr. S. A. Forbes, chairman, and six members of the State Academy, including the curator of the Chicago Academy of Sciences. The duty of this committee is to organize an ecological survey of the state of Illinois. To this end the curator has spent a large part of the summer in making a survey of the Skokie Marsh region, near Chicago, an illustrated report upon which is in preparation. It is proposed by the state ecological committee to continue this work until the entire state has been surveyed and a working map prepared.

On May 5th, 6th and 7th the American Association of Museums held its third Annual Meeting in Chicago as the guest of the Chicago Art Institute, the Field Museum of Natural History and the Chicago Academy of Sciences. The 7th of May was set apart for the Academy to act as host and fifty members of the Association, consisting of delegates from all of the important museums and academies in America spent the entire day in the museum building. A number of valuable papers were read and discussed, including the plans for the future extension of the Academy building. The days of the meeting were unfortunately very unpleasant, but the delegates were conveyed without discomfort from their hotels to the Field Museum and to the Academy, in automobiles kindly placed at their disposal by the trustees and friends of the three Chicago institutions. The comments and criticisms of the delegates who attended the meeting have been very flattering and encouraging. The methods of labeling and



ECOLOGICAL GROUPS OF MOLLUSKS
A mud beach with *Ilyanassa obsoleta* (above)
Model illustrating pelecypod adaptations (below)

exhibiting the bird and shell collections were especially commented upon, the general opinion expressed being that the Academy was a concrete example of what could be accomplished with moderate resources.

ATTENDANCE.

The relation of the Academy to the general public has been most encouraging. The attendance at the lectures has usually filled our assembly hall. The number of visitors to the museum continues to be large and many have expressed their appreciation of the work being done. On several occasions visitors have called at the office and have voluntarily spoken of some particular feature which interested them. It is noteworthy that the large descriptive labels appeal to the public and are read with evident interest.

The attendance at the museum during the year 1908 has been upwards of 300,000. This winter, during the live stock exhibition, and again at the Christmas holidays, the usual attendance at the museum doubled. Throughout the winter months the week-day attendance has varied from 87 to 500, and during the summer months, when the park is thronged with visitors, it has varied from 573 to 1,154. Over 5,000 visitors have been recorded on Sunday at this time of the year. The average attendance, including Sunday, has been about 6,000. It is noteworthy that the Academy continues to hold third place in this respect, its museum attendance being exceeded only by the American Museum of Natural History in New York and by the United States National Museum in Washington.

This very desirable state of affairs is due wholly to its location in Lincoln Park, Chicago's most popular breathing spot, and to the fact that it is free at all times. It is interesting to note that the attendance during fifteen years has but once fallen below 300,000 (245,214 in 1897), and that it rose to 413,390 in the year 1898. The value of the public museum as an aid to higher civic attainment is beyond question, as evidenced by the number of people annually visiting the Academy, as well as by those visiting similar institutions in the city.

LECTURES AND MEETINGS.

During February, March and April two lecture courses were conducted, embracing nine lectures. These lectures covered a wide range of subjects and were well attended, the average being 146, and the largest 225. Six regular meetings have been held,

at which the average attendance has been 89. The regular meetings of February and March were limited to members, and the attendance was 37, or an average of 18½. The four meetings in the fall were thrown open to the general public, and the attendance was 500, or an average of 125. Our present membership is so widely scattered that it is not now possible to secure an audience of members. At the request of the superintendent of Lincoln Park, a lecture was given by Mr. John T. Withers, on Saturday evening, March 7, on "The Value of the Tree and Its Care," which was attended by sixty persons.

The annual field meeting was held on July 11th at Lake Villa, Illinois, and was attended by sixty-one members and their friends. Several joint meetings have been held with other institutions. On December 11 a lecture was given conjointly with the State Microscopical Society of Illinois, and on May 2 and December 12th with the Illinois Audubon Society, at which lectures were given emphasizing the value of wild bird portection.

To summarize, 21 lectures have been given, attended by 2,225 persons, or an average of 107. A list of the subjects and lectures is appended.

POPULAR LECTURE COURSE.

| | |
|---|-------------------------|
| February 28—"The Sand Dunes of Lake Michigan and Their Vegetation"..... | Dr. Henry C. Cowles |
| March 6—"Travel and Exploration in Alaska"..... | Dr. Wallace W. Atwood |
| March 7—"The Value of the Tree and Its Care"..... | Mr. John T. Withers |
| March 13—"The Evolution of the Elephant"..... | Dr. Samuel W. Williston |
| March 20—"The Illinois Petroleum Industry"..... | Dr. H. Foster Bain |
| March 27—"Daylight; Its Quantity and Quality"..... | Dr. Olin B. Basquin |
| April 3—"World Building"..... | Dr. Forest Ray Moulton |
| April 10—"The Forests of Eastern America"..... | Dr. Edgar N. Transeau |
| April 17—"The Birds of the Washington Coast"..... | Dr. Lynds Jones |
| April 24—"Zoological Collecting in British East Africa".... | Mr. C. E. Akeley |

REGULAR MEETINGS.

February 25—"Some Features of the Genesis of Coals".....
.....Mr. David White
March 24—"Extinct Batrachians".....Mr. Roy L. Moodie
May 26—"Our Spring Visitors, the Birds; Whence They
Come and Where They Go".....Mr. Frank C. Baker
October 27—"Zoological Collecting in British East Africa".....
.....Mr. C. E. Akeley
November 24—"The Travels of a Naturalist in Cuba".....
.....Dr. Otis W. Caldwell
December 22—"In the Land of the Muskelunge".....
.....Mr. Frank C. Baker

JOINT MEETINGS WITH OTHER SOCIETIES.

The Illinois State Microscopical Society.
December 11—"The Manufacture of Iron and Steel".....
.....Mr. J. C. Mather
The Illinois Audubon Society.
May 2—"The Sea Birds of the Washington Bird Reserva-
tion"Dr. Lynds Jones
December 12—"On the Trail of the Plume Hunter".....
.....Mr. W. L. Finley

The Entomological Section has held eight regular meetings and two field meetings, at which the attendance has been very satisfactory. The meetings have been devoted to the reading of papers and the discussion of taxonomic questions illustrated by specimens.

THE ACADEMY AND THE PUBLIC SCHOOL.

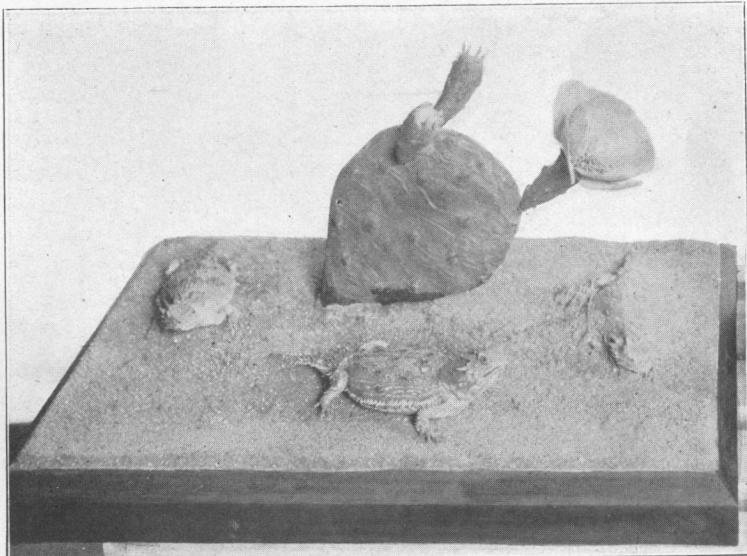
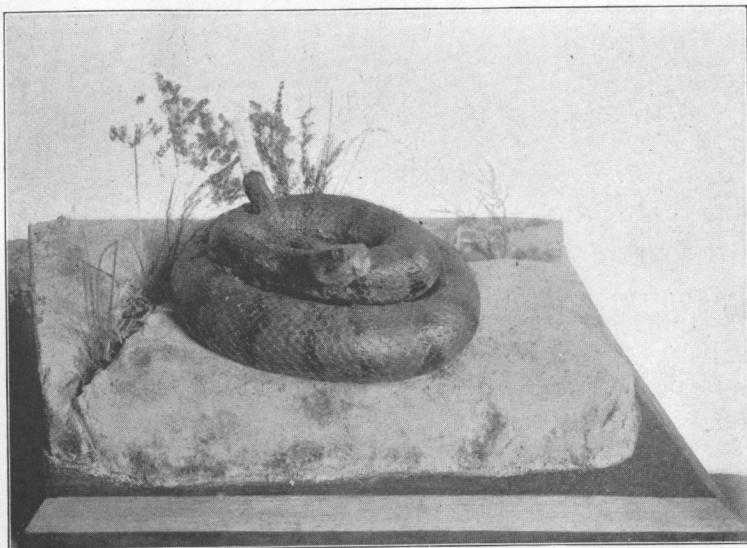
It is gratifying to note the continued use of the Academy by the various educational institutions of the city. It is highly desirable that there should be the friendliest feeling of co-operation between the public school system and the Academy. Each public school teacher ought to feel that a cordial welcome will be accorded both her and her class when they visit the museum, and she should also be made to feel that the Academy is desirous of aiding her in her work. That such is the case is shown by the letters which have been received from teachers and from the words of appreciation expressed by them in personal conversation. One teacher in a high school writes as follows: "I most fully appreciate the attitude you manifest toward the teachers and schools." Another teacher writes: "You have the faculty well developed of making one feel at home." These are

examples of the many words of encouragement received by the Academy.

Several methods have been used to assist the Chicago schools in the study of nature. One has been the donation of duplicate specimens not required by the museum. For this purpose 750 shells have been contributed for class use among the high schools. Another method has been to loan certain materials, such as birds, fossils and lantern slides, and for this purpose 100 birds, 50 fossils and several hundred lantern slides have been thus employed. On several occasions birds have been mounted for teachers.

The identification of specimens for teachers has been a constant source of aid and has consumed considerable time. The distribution of certain publications has also aided the teachers in their work. The curator's work on "Chicago Mollusks" has been used in several of the high schools, and a number of copies of this work have been presented to the schools for class use. It was reported that in the Wendell Phillips High School 110 pupils were endeavoring to use one volume; this condition was rectified by the presentation of ten copies. Copies have also been sent to the Waller High School, the Lake View High School and the Crane Manual Training School.

A method recently instituted by the curator for aiding the schools has been the giving of lectures or talks to the pupils, and this method has been quite successful. Some of the lectures have been given in the schools and others in the Academy building. Two meetings of this character have been held in the Biological Round Table of the Chicago High Schools in the Board of Education rooms, the subjects for discussion being respectively, "How the Museum May Aid the High School," and "The Ecology of the Mollusca," the latter illustrated by specimens and stereopticon slides. A lecture on the "Migration and Ecology of Birds" was given before the E. W. Nelson Bird Club of the Lake View High School, the meeting being held in the Academy's lecture hall. Forty members of the club were present. A lecture on "The Homes of Our Native Birds" was given for the 7th and 8th grades of the Lincoln School on Friday afternoon, December 18, at which 300 children were present. On the same date a lecture on "Mountaineering in Mexico" was given at Small Park No. 1, West Side Park System, which was attended by over 200 persons, mostly children.



GROUPS OF REPTILES
Banded Rattlesnake (above.) Horned Toad (below)

The building and assembly hall have been freely placed at the disposal of teachers for class use. Early in April the assembly hall was used by the Teachers' Normal Extension Class for a day's study of birds, the room being cleared of chairs and provided with study tables. For class use, a large number of birds were used from the museum collection. The majority of the teachers came from the south side, evidencing the fact that the Academy's usefulness is not confined solely to the north side.

The museum has been used, as in the past, by teachers with their classes. These classes have ranged in grade from the kindergarten to the high school, and the location of the schools has extended from a few blocks to La Grange and Evanston, distances of fifteen and ten miles respectively. Mr. Holtzman, of the Waller High School, continues to use the museum collections in his usual practical method, which was described in the English Museums Journal some years ago.* This method requires considerable study on the part of the teacher, and has not, therefore, become popular, although several teachers are experimenting along this line and others have become interested. It would seem from numerous observations that this is the most practical manner in which the museum can be used.

RELATIONS TO OTHER EDUCATIONAL INSTITUTIONS.

The relation of the Academy to other higher institutions of learning has been of the most cordial character. Assistance has been rendered the University of Chicago, the University of Illinois, Leland Stanford University, the University of Wisconsin, University of Colorado, Wisconsin State Historical Society, Coe College, Iowa, the Oklahoma State Normal School and the Field Museum of Natural History, besides numerous special students in different parts of the United States. Upwards of 5,000 specimens, mostly mollusks, have been critically examined for the institutions mentioned. Other institutions, such as the University of Alabama, the Oregon State Academy of Sciences, the Pennsylvania State Museum, the Fairbanks Museum, the Brooklyn Institute of Arts and Sciences, and the Buffalo Society of Natural Sciences, have requested information concerning cases, lantern slides or details of museum technique.

The prominence now given to the subject of animal ecology in the universities has caused the more extensive use of those

*"The Museum and the Public Schools," Museums Journal, August, 1905, Page 50.

works which exhaustively monograph a group of a specific area. The curator's work on the Mollusca of the Chicago Area has been adopted by several of the universities as a field text book on the Mollusca, and twenty volumes have been sent, upon request, to the departments of ecology in the University of Chicago and the University of Illinois. The students in other universities, such as Cornell, Michigan, Kansas, and also the U. S. Fish Commission, several state normal schools and small colleges, are using this work. Mr. Woodruff's Report on Birds is also in use in several of the above institutions. The continued use of these volumes is conclusive evidence that the money invested in publications is wisely used. It is earnestly hoped that during the year 1909 several additional bulletins may be published.

During the year representatives of a number of museums and academies have visited the Academy to study some of the methods in use for public exhibitions, for storage and for interesting the public in nature. Several professional gentlemen from European institutions have also visited the museum for a like purpose.

RESEARCH WORK.

Considerable research work was accomplished during the past year. Twelve papers written by the curator have been published in various periodicals, the more important of which were as follows:

Some Instructive Methods of Bird Installation. Proc. Amer. Asso. of Museums, I, p. 52, 1908.

The Chicago Academy of Sciences: Its Past History and Present Collections. Special Publication No. 2, The Chicago Academy of Sciences.

Note on *Lymnaea desidiosa* Say. The Nautilus, XXII, p. 20, 1908.

The Chicago Academy of Sciences. Science, N. S., XXVIII, No. 709, p. 138, 1908.

A new American Planorbis. The Nautilus, XXII, No. 4-5, p. 45, 1908.

A Small Collection of Shells from Texas. Science, N. S., XXVIII, No. 720, p. 534, 1908.

The Relation of the State Academy of Science to the Natural History Survey of the Chicago Academy of Sciences. Trans. Ill. State Acad. Sci., I, p. 68, 1908.

The manuscript for the curator's Monograph of the *Lymnaeidae* of North and Middle America has been completed, the

work containing about 1,200 pages of manuscript, 80 plates and nearly 100 maps. This will be ready for publication about the middle of the year, and it is hoped that funds may be provided at an early date, so there may be no delay in its publication.

THE MUSEUM.

The additions to the museum number 8,789, of which 8,084 are mollusks; 210 separate accessions were received, varying from one to 2,000 specimens. Much of this material, especially the mollusks and birds, is of a most valuable character, consisting of the faunas of certain regions, types, cotypes and other critical material. The possession of this class of specimens renders the collections of very great value for scientific investigation. It has been learned from experience that the best method for securing valuable material is to send well equipped expeditions to desirable localities and to exchange the duplicate specimens for other like material.

The additions for the year may be tabulated as follows:

| | |
|---------------------------|-------|
| Botanical specimens | 55 |
| Lower invertebrates | 114 |
| Insecta | 28 |
| Mollusca | 8,084 |
| Crustacea | 8 |
| Pisces | 3 |
| Reptilia | 68 |
| Aves | 213 |
| Mammalia | 17 |
| Minerals | 144 |
| Archaeology | 15 |
| Paleontology | 40 |
| | — |
| | 8,789 |

The work accomplished by the museum staff has been very satisfactory, resulting in a noticeable betterment of the collections. During 1907 and 1908 the bird collection has been improved by the addition of many groups illustrating the nesting habits of Illinois birds. These groups, which are made as attractive as possible, exhibit not only the parent birds with their young in the nest, but also the particular vegetation in which, or among which, they build their nests, thus making them of great value from an ecological standpoint. The groups already completed are as follows:

Hairy Woodpecker.....In dead tree.

| | |
|------------------------------|----------------------|
| Yellow-Billed Cuckoo | In grape vine. |
| American Robin | In apple tree. |
| Catbird | In cherry tree. |
| Bluebird | In dead tree. |
| Short-Billed Marsh Wren..... | In cattails. |
| Bank Swallow | In imitation bank. |
| Barn Swallow | On beam of barn. |
| Cedar Waxwing | In crab apple tree. |
| Ovenbird | In grass. |
| Bobolink | In grass and clover. |
| Trail's Flycatcher | In willow tree. |
| Piping Plover | On sand beach. |
| Double Crested Cormorant.... | On cliff. |

Twenty-five groups await the addition of adult or young birds for their completion. It is planned to push this line of work until the majority of the nesting birds of Illinois are represented in groups exhibiting both adult and young.

The local collection of land birds is constantly in use by teachers with classes, particularly in the spring. It is apparent that the addition of a case for the water birds is very necessary, and it is hoped that this may be provided this year.

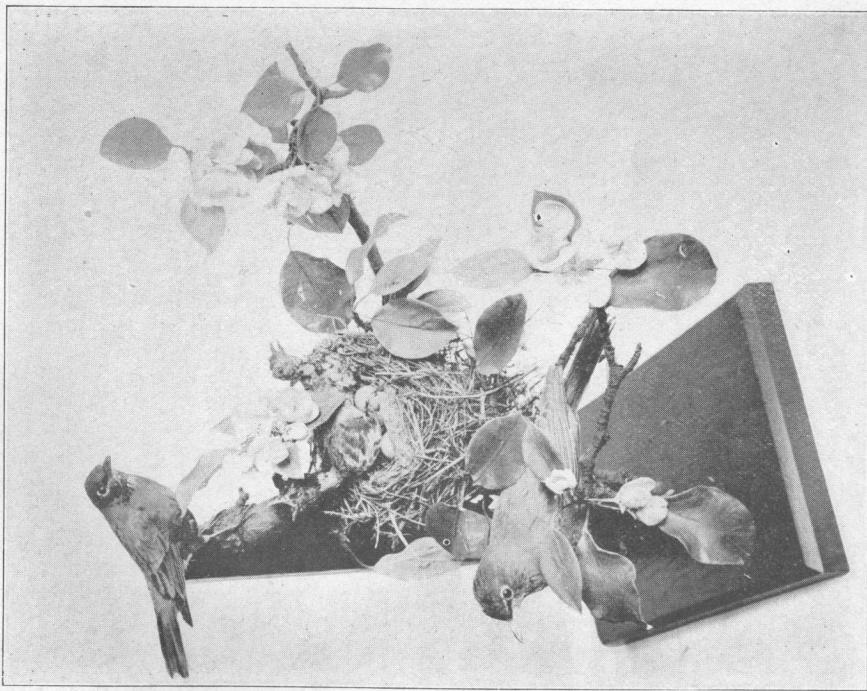
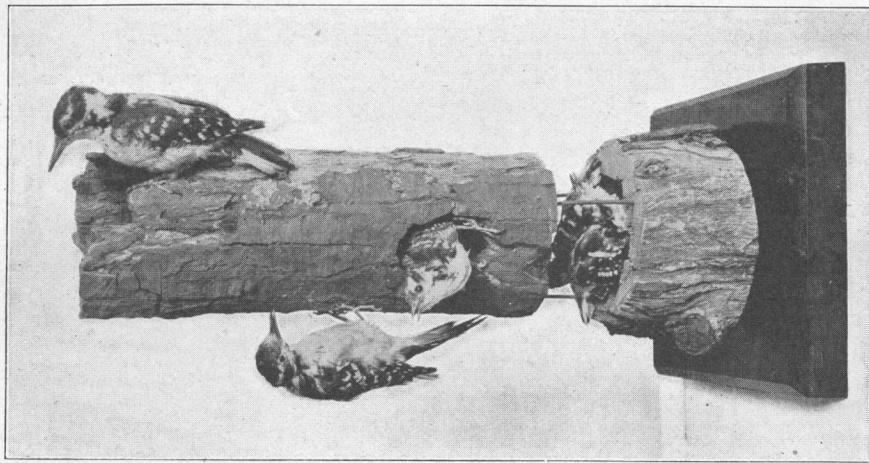
The cases illustrating avian morphology, consisting of structural features, such as wings, feet, bills, etc., seasonal and sexual dimorphism, albinism, modification, etc., has proven of great help to instructors in bird study, and it is planned to add to these such other morphological features as will be of assistance in teaching the fundamental facts of ornithology.

The collection of reptiles has been somewhat rearranged. Alcoholic material is difficult to exhibit satisfactorily without great expense for the purchase of square jars, and for this reason little attention has been given to this part of the collection. A number of groups of dry specimens have been made which convey to the public mind a fair conception of the form and environment of some of the common species. These groups represent:

| | |
|----------------------|------------------|
| Florida Rattlesnake. | Box Tortoise. |
| Banded Rattlesnake. | Collared Lizard. |
| Horned Toad. | |

The skeleton of the Mammoth, *Elephas columbi*, has been partly renovated and a large label has been prepared, detailing the facts concerning the finding of the skeleton, the number of

GROUPS OF NESTING BIRDS OF ILLINOIS—American Robin and Hairy Woodpecker



true bones used in its restoration and its distribution in America. Mr. Knight's restoration of the Hairy Mammoth (*Elephas primigenius*) has been framed with the descriptive label, to aid the visitor to understand and appreciate the appearance of these peculiar animals.

Considerable attention has been given the invertebrate collections. The Mollusca have received the most attention. One hundred and forty-five species and varieties of the genus *Helicostyla* from the Quadras collection have been labeled, about fifty per cent being placed on exhibition. It is hoped that time may soon be available to label and exhibit a large percentage of this magnificent collection. It has been deemed expedient to give precedence to American material, and an effort has been made to immediately label and install the accessions of this class. The morphological collection has been somewhat rearranged and enlarged by the addition of twenty-seven shells, cut in section to show the structural character of the whorls and axis of the gastropod shell.

The economic collection has been enlarged by the addition of a number of specimens illustrating the use of shells for various purposes. These comprise crushed oyster and clam shells for poultry, shell tiling, napkin rings, paper cutters, dress buttons, etc. It is planned to exhibit as large a collection as possible illustrating the various economic uses for which mollusks are used, including that of food.

Little attention has been given the collection of insects, except to properly insure it against damage by museum pests. A number of specimens have been placed on exhibition illustrating mimicry and protective coloration, sex dimorphism, household pests, economic species (as the silk worm), and a series showing the more injurious species. There is much valuable work to be accomplished in this department.

The local botanical collection has been revised by Miss Carrie A. Reynolds, of the Lake View High School. Two new herbarium cases have been provided, and it is believed that the collection of local plants will soon be in a much more satisfactory condition.

The printing plant has been rendered of greater value by the addition of a considerable amount of new type of various sizes, and it is now possible to produce larger labels, printed in heavy, bold type, of ten, twelve and eighteen point, producing printed

matter in the museum which does not try the eye to read. About 2,000 labels were printed during 1908, including distribution maps, food habits and family labels for the bird collection. A large label has been prepared emphasizing the value of birds to the agriculturist and giving reasons for their protection.

The work accomplished by the taxidermic and photographic departments, under the direction of Mr. Woodruff, has been very satisfactory. One hundred and fifty-eight specimens have been prepared, ten bird groups have been completed, and 999 negatives, slides and prints have been made. Mr. Woodruff has also spent considerable time in the field, collecting specimens and material for the groups. This is a very important part of the work of the Academy and should be materially increased.

THE LIBRARY.

During the past year the library has been revised and rearranged, and the card catalogue, which was begun in 1907, has been finished. At the present time any book, or series of publications, may be located without difficulty. The library has been growing to so great an extent that it has become a problem to find room for the accessions upon the shelves. The rearrangement recently completed provides for about two years' growth, after which additional cases will be necessary. The library is one of the very essential tools for the carrying on of the Academy's work, and it must be kept constantly in a condition for ready reference.

Four new societies have been added to the exchange list, and twelve societies have sent publications which filled in certain omissions, thus completing their sets in our library. Special Publication No. 2 has been sent to all exchanges, which now number 546. It has also been sent to the members of the Academy. In addition to these, a more or less complete set of the Academy's publications has been sent to twelve foreign societies and eleven domestic societies.

The library has been consulted by a number of professional men, and on several occasions rare volumes have been loaned to other institutions, a notable instance being a copy of our early transactions, which was loaned to McGill University, Montreal, Canada.

In his last year's report the secretary strongly urged the immediate binding of the pamphlets in the library, that they might

be preserved. This need has been supplied by the grant of a regular monthly appropriation, which allows for the periodic binding of a number of volumes. This much needed work not only insures the protection of the publications, but adds very materially to the appearance of the shelves.

The receipts by gift and exchange have been the largest in the history of the Academy, totaling 2,934 books and pamphlets, divided almost equally between foreign and domestic exchanges. A gift of great value, which should be specially noted, is that of a fragment of the early proceedings of the Academy, received from the University of Chicago through the efforts of our president, Dr. Chamberlin. This fragment completes the set of the early proceedings. The library now contains 29,170 books and pamphlets.

EXECUTIVE WORK.

The executive work of the Academy has been governed by the Executive Board and the Board of Trustees; both of these bodies have held the usual meetings with a high average attendance.

MEMBERSHIP.

The membership of the Academy has shown an unsatisfactory condition during the past year, the yearly loss far outweighing the gain during this period. Four members have resigned and seven have died, while but four new members have been added, causing a net loss of seven.

PUBLICATIONS.

One publication was issued during 1908. This was Special Publication No. 2, entitled "The Chicago Academy of Sciences; Its Past History and Present Collections." It was prepared as a souvenir for the members of the American Association of Museums. It has been sent to all foreign and domestic societies to apply on our exchange account, and is being sold in the check-room of the Academy as a guide book.

Two publications will be ready during 1909. One of these, on the Fungi of the Chicago Area, will be ready in a few weeks. The second work, which has already been mentioned, is of such a size and character as to exclude it from the series already begun. It would seem advisable to issue the work as a memoir of a somewhat larger size than the bulletins. The work em-

braces a complete monograph of the molluscan family *Lymnaeidae*, both recent and fossil. The manuscript will be ready for the printer about the middle of the year.

THE OUTLOOK.

The outlook at the beginning of another year is encouraging. Certain suggestions regarding the work of the year 1909 seem pertinent at this time. Co-operation with the State Academy's ecological survey of the state should be actively carried on with a view toward the establishment of a purely ecological collection, which is at present a desideratum in all museums. The collections in the museum should also be somewhat rearranged to give as much prominence as possible to Illinois natural history. This can only be done, however, at the sacrifice of the more general exhibits, owing to lack of room. The local collection of birds should be completed by the addition of another case for the exhibition of the water birds.

Work among the children could be made especially valuable and effective by the establishment of Saturday lectures given exclusively for their benefit. Lectures in the school room should be continued and encouraged, for it is believed that this is one of the best methods of interesting the children in nature, as it may be carried on in connection with the public school system, the natural channel for such endeavors. Teachers should be encouraged to bring classes to the museum wherever it is possible. It is hoped that the Academy may some day establish a Children's Museum along the lines of the Children's Museum of the Brooklyn Institute of Arts and Sciences. There is a field for such a museum in Chicago and the Academy is the proper institution to conduct the same.

Research work, the life of any first-class scientific institution, should not be neglected and time should be freely given for the carrying on of this line of work. It is desirable that certain of the collections should be made as complete as possible, that they may form the basis for advanced research work by specialists who will be drawn to the Academy by the wealth of accurate material.

In conclusion, I wish to acknowledge my indebtedness to the kind co-operation of the Board of Trustees and to the efficient aid of the staff of the museum, without whose cheerful assist-

ance and painstaking care the work of the past year could not have been successfully accomplished.

The Academy is also indebted to Mr. C. W. Andrews, Librarian of the Crerar Library, for the continued use of a room for the meetings of the Ethnological Section, to Miss Carrie A. Reynolds, of the Lake View High School, for volunteer work on the botanical collection, and to Dr. H. A. Pilsbry, of the Academy of Natural Sciences of Philadelphia, and Mr. Bryant Walker of Detroit, Mich., for assistance in the determination of technical material.

Respectfully submitted,

FRANK C. BAKER,
Curator and Acting Secretary.